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ABSTRACT

In 1984, a year-long evaluation was conducted at Los Medanos College (California) of the Language Arts Tutorial Program, a cross-curricular assessment and retention program built around course-specific assessments and tutorial assistance. The primary objective of the evaluation was to measure the effectiveness of the assessment procedure and tutorial intervention. The study compared tutored and non-tutored students and referred and non-referred students. In each semester of the 1983-84 school year, students in nine classes (six general education and three vocational) were targeted for the study. Quantitative and qualitative data sources were used, including surveys, performance data, and interviews. The results indicated that the course-specific identification process corresponded significantly to students' reading ability. The likelihood that a referred student would go to a tutor was related to age, ethnicity, program of study, and courses in which they enrolled. Analysis of interview data and student transcripts indicated that students did not seek tutoring due to lack of time, awkwardness of seeking help, a remedial stigma associated with tutoring, the belief that they did not need extra assistance, a pattern of reading/writing avoidance, and the reception of help from someone other than a tutor. Referred tutored students were more likely to earn higher course grades, complete their classes, and show a greater gain in reading comprehension. Additionally, both faculty and students reported that participation in the tutoring program helped students improve their course performance and their reading, writing, and study skills. Implications for the program are discussed, and a sample examination is attached. (JMC)

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# Evaluation of an Alternative Solution for the Assessment and Retention of High-Risk College Students

Paper prepared for presentation
at the 1987 Annual Meeting
of the AERA, Washington, D. C.

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Evaluation of an Alternative Solution for the Assessment and Retention of High-Risk College Students

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## ABSTRACT

Skill deficiencies of students entering college have been the object of national attention for over a decade. Important issues of equal access, academic quality, and levels of school and student commitments have been heatedly discussed. One of the central issues has concerned the acceptability of standardized tests to predict community college success and to track students. This paper reports on a year-long evaluation of a cross-curricular assessment and retention program built around course-specific assessments and tutorial assistance. The evaluation's primary objective was to measure the effectiveness of the assessment procedure and the tutorial intervention. Both qualitative and quantitative data were gathered. The results indicated that the course-specific identification process corresponded significantly to students' reading ability. The likelihood that a referred student would go to a tutor was related to age, ethnicity, program of study (G. E. or Voc.), and courses in which they enrolled. Analysis of interview data and student transcripts yielded the following reasons for why students did not elect to seek tutoring: (a) lack of time, (b) awkwardness of seeking help, (c) a remedial stigma associated with tutoring, (d) belief that they did not need extra assistance, (e) a pattern of reading/writing avoidance, and (f) reception of help from someone other than a tutor. Referred tutored students were more likely to earn higher course grades, complete their classes, and show greater gain in reading comprehension. Additionally, both faculty and students reported that participation in the tutoring program helped students improve their course performances and their reading, writing, and study skills. Implications for the program are discussed.

## INTRODUCTION

Skill deficiencies of students entering college have been the object of national attention for over a decade. Important issues of equal access, academic quality, and levels of school and student commitments have been heatedly discussed (Maxwell, 1980). While there is little disagreement that increasing numbers of students enter college unprepared, battle lines have been drawn between two opposing camps in regard to what to do about it. One camp favors pre-enrollment identification and intervention -- mandatory testing and placement. A standardized test assesses entering students before they enroll and then funnels low-scorers into remedial courses. The other camp favors a more "open door" policy which allows students to enroll in courses without prior testing. Support services are offerred to students who choose to utilize them. The support services, tutoring, counseling, etc., intend to help students succeed in classes in which they have already enrolled. Maintaining college-level standards while keeping the open door open is a system-wide concern. How to achieve this goal has not been resolved.

The two main goals of Learning Assistance Programs are to (1) identify underprepared students and (2) provide some intervention to correct students' academic deficiencies. Most programs employ one or more standardized tests to assess entering students before they enroll and then "track" those students into courses consistent with students' achievement on the standardized test (Luckinbill & McCabe, 1978; Haase & Caffrey, 1983; Losak, 1982; Miller, 1984; Morante, 1982). The Los Medanos College Language Arts Tutorial Program shares the same goals of identification and

intervention, but has fashioned a system significantly different than the usual standardized test-and-track model.

The LMC program integrated the identification of underprepared students and the tutoring function into general education and vocational courses. This cross-curricular approach to reading and writing capitalized on existing strong lines of communication among administration, language arts faculty, and content faculty to assess students and to provide reading/writing tutoring within courses across the curriculum.

The assumptions underlying the program are:

1) individual faculty members, working within the confines of their content courses, can accurately identify underprepared students with equal or greater success than a nationally-normed reading test;

2) individual faculty can cause students in their classes to seek supplemental assistance from the tutor;

3) peer tutors can be an effective bridge between college-level courses and a diverse group of underprepared students;

4) underprepared students can improve their reading, writing, and study skill deficiencies by working on assignments in a college-level content class;

5) the assessment-intervention process has a greater effect on retention and skill development than remedial class placement.

In the Standardized Testing/Tracking Model, incoming students are first tested, then tracked into developmental courses. The low scorers must

sometimes complete three semesters of developmental courses before they can enroll in "college-level" courses. Typically, these students drop out before they are "eligible" for their education (Benjamin, 1976; Wenrich, 1971; Cohen, 1985). Content faculty are isolated from a large number of students who seek a college education.

These systems are in place despite the fact that many test experts are highly skeptical of the ability of a single standardized test to accurately predict how a very diverse student population with diverse educational goals will perform in an equally diverse college curriculum (Baker, 1979; Mercer, 1977; Ratteray, 1974; Rosenbach & Mowder, 1981; Samuda, 1973; Taylor, 1978; Williams et al.,1978).

When a student enrolls in a General Education (G.E.) course such as astronomy or a Vocational Education (V.E.) class such as appliance repair technology at Los Medanos College, s/he is tested in that class, using a test particular to that class. These screening tests have been designed, field-tested and modified by the course instructors working in conjunction with language arts instructors. Each screening test consists of a short reading sample (selected from something in the course materials), a series of appropriate comprehension questions, and a question to which students provide a written response. (See Appendix A). Within the first two weeks of each semester, students enrolled in all General education (GE) and entry-level Vocational (Voc) courses are screened, course by course. Each course instructor evaluates his/her students' performance on the respective screening test.

Students whose screening tests reveal deficiencies are urged to work with a reading/writing tutor specifically assigned to that course. The few students with severe literacy problems are referred to special courses or for more in-depth testing. But the bulk of the targeted students are referred to the respective course tutors.

The tutor is a student who has recently completed the class for which s/he tutors, has demonstrated superior reading and writing skills, and relates well with others. The tutors are paid and trained under the auspices of the Language Arts Area. Thus, each tutor is knowledgeable in the course for which s/he tutors, in the tutorial instruction process, and in reading, writing and study skills. Tutors are expected to help improve the identified students' reading/writing/study skills and relate them to the course requirements.

## THE QUESTIONS

The distinction between the testing/tracking model and the LMC model is germane to the Tutorial Assessment Project (TAP). While TAP evaluation activities scrutinized the consequences for students of the LMC model, at issue is the validity of the concepts underpinning the program. Can individual faculty within the confines of the content course accurately identify underprepared students with equal or greater success than a nationally-normed standardized test? Can individual faculty, again in their courses, cause students to seek supplemental assistance in reading/writing/study skills? Can peer tutors be an effective bridge between college-level courses and a diverse group of underprepared

students? Does the LMC model really open the educational door for capable, but skill-deficient students or is it just a sophisticated mechanism by which the open door becomes a revolving door?

The primary objective of the project was to measure the effectiveness of the Language Arts Tutorial Program at Los Medanos College. Is the model workable? Can skill-deficient students improve their literacy skills and at the same time succeed in college-level courses? Can faculty adequately screen students and make accurate, appropriate referrals? Do the faculty find their courses "diluted" by the presence of developmental students? These concerns led to the posing of four main questions governing this inquiry:

1) Are the in-house screening tests identifying the appropriate students?

2) Are students receiving tutorial assistance?

3) Why or why not?

4) How effective is that assistance?

Question 1: Appropriateness of Identification Process

The first question which must be answered is whether the screening process accurately identifies students with poor literacy skills. In order for the tutorial intervention to work, the right students must first be identified. How well does the LMC identification procedure work? Are the identified students genuinely less prepared than the others? What demographic characteristics typify referred students?

Question 2: Incidence of Tutor-Student Contact:

It's very important to know whether the referral system works, especially given that students, one referred, must choose to seek tutoring. The assistance is elective, not required. Of those referred, how many actually seek help? Does the screening procedure and a teacher's recommendation create enough impetus to lead to student-tutor contact?

Question 3: Why or Why not?:

What causes some students to elect to seek tutoring and others not to? To what degree does the structure of the program contribute to these results? Is the standard assumption about motivational factors borne out in the case of LMC's students? What are the other influencing factors?

Question 4: Effectiveness of intervention:

What changes does tutoring produce? It is the intention of the program that grades, retention rates, reading scores, writing scores, and self-assessments will indicate more improvement among tutored students than among the non-tutored. Does the data support these expectations and to what degree?

## DESIGN, MEASURES, AND PROCEDURES

The design of the study compared tutored and non-tutored students and referred and non-referred students. In each semester of the 1983-84 school year students in nine classes (six GE and three Voc) were targeted for study. Students were identified and as either referred for tutoring or not referred

as either tutored or not tutored. Thus, there were four groups of students as shown in Table 1:

Table 1:

Student Groups

| Referred | | Not Referred | |
|---|---|---|---|
| Tutored | Not Tutored | Tutored | Not Tutored |

Each course instructor determined the students' referred/not referred status via the in-house screening tests described previously. Each student determined his/her status as tutored/not tutored by electing to see a tutor or electing not to.

In order to answer the questions discussed above, quantitative and qualitative measures were used. It was felt that by gathering diverse forms of data (1) more understanding of the program would result; (2) the bulk of the data would check hasty or errant conclusions, and (3) where effects were indeed present, they would be both quantitatively and qualitatively felt. Table 2 delineates the types of measures used:

Table 2:

Data Sources

| Quantitative | Qualitative |
|---|---|
| Reading Comprehension | Student Interviews |
| Holistic Writing Assessment | Faculty Interviews |
| Self-Assessment Survey | Tutor Interviews |
| Performance data (grades, retention) | |
| Demographic data (age, sex, ethnicity) | |

*Reading Comprehension* The reading comprehension sub-test of the Descriptive Test of Language Skills (DTLS) was administered to the target population. Form A was used as a pre-test and Form B as the post-test. The DTLS was designed by the College Entrance Examination Board particularly for community college students. Pre-test scores were used to check the accuracy of the in-house screening tests. Differences between pre-test and post-test scores were used to compare tutored students with the non-tutored students. It was expected that tutored students would show greater gains than the non-tutored groups and that low scores in the DTLS pre-test would correlate with low scores on the in-house screening tests.

*Writing Assessment* Pre- and post-writing samples were obtained from four of the eighteen classes studies. These were holistically scored using the City University of New York six-point system. Comparisons of gains between tutored and non-tutored students were made. This measure was conducted in the spring semester only. It was expected that tutored students would show greater gains than non-tutored.

*Self Assessment Survey* A survey designed for the study asked students to rate their reading/writing/study skills and motivation; to predict their course grades; and to rate their level of satisfaction with previously received grades. This survey, like the reading comprehension and writing assessment, was administered as a pre- and post-test basis in the eighteen target classes. The pre-test form was used in conjunction with the reading pre-test to determine the degree to which instructors' assessments of students on the in-house screenings were accurate. It was expected that referred students would report less confidence in their reading/writing/ study skills and predict lower course grades. Changes between pre-test and

**Table 3:**

**Alignment of Data Sources and Evaluation Questions**

| | QUANTITATIVE | | | | | QUALITATIVE | | |
|---|---|---|---|---|---|---|---|---|
| | DTLS | Questionnaire | Demographics | Writing Assessment | Performance Data | Student Interviews | Faculty Interviews | Tutor Interview |
| Question 1.: identification Process | X | X | X | | X | X | X | X |
| Question 2.a.: Who Receives Assistance? | | | X | | | X | X | X |
| Question 2.b.: Why/Why not? | X | X | X | | | X | X | X |
| Question 3.: Intervention Effectiveness | X | X | | X | X | X | X | X |

post-test responses to questions regarding motivation and degree of satisfaction with previous grades were analyzed to see if there was a different pattern of response between referred and non-referred students and between tutored and non-tutored students.

*Performance Data* Course grades and retention rates were gathered from student transcripts. It was expected that tutored, referred students would receive better grades and drop out less than non-tutored, referred students.

*Demographic Data* Age, sex, and ethnic data were also gathered on the target population. This data was used to determine whether patterns of assessment and referrals for minority students differed from those of the majority student population. Age and sex as factors relating to likelihood to seek tutorial help were also investigated. Los Medanos College's student population, like that of most community colleges, is diverse.

*Student Interviews* Approximately one-third of the students who participated in the study were individually interviewed. The interviewed students belonged to one of two groups: those referred for tutoring who received it, and those referred who didn't receive it. The first group provided detailed information as to why they saw a tutor and their perceptions as to the results of their tutoring experiences. The second group indicated why they didn't receive tutoring. Both groups assessed theircourse progress. This process provided rich data on all aspects of the assessment project: referral process, incidence of student-tutor contact, factors influencing contact, and program effectiveness.

*Tutor Interviews* Tutors assigned to the target classes were interviewed while the assessment project was in process. In a group format, they

commented about the type and amount of change they observed among their tutees. The tutors reflected, in some depth, on the referral process and the reasons why some referred students sought help while other referred students did not.

*Faculty Interviews* Faculty whose classes provided the studied population were interviewed. In individual, one-hour sessions, faculty were asked for their opinions regarding the referral process, the incidence of tutor-student contact, the reasons why some students sought tutoring while others did not, and the effects of the program.

Data from all these measures were used to asses the effectiveness of the Los Medanos College Language Arts Tutorial Program. Table 3 displays the alignment of data sources and evaluation questions.

The sample of 240 students included 91 from 6 Vocational courses and 149 from 12 General Education courses. Three Voc and six G E courses were studied in each of two semesters.

## CONCLUSIONS

Question 1: Do the screening tests indentify appropriate students? The DTLS reading test is comprised of three sub-tests: main ideas, inference, and statement of fact. Separate analyses on the data from the sub-tests did not show any discernible pattern of subtest results that differed from the total score analysis. Therefore the results reported here are for the test as a whole.

The pre test scores in the reading comprehension test differed significantly between referred and non-referred students for both G.E. and vocational classes. G. E. and Voc. Ed. students who were referred scored an average of six points lower on the reading test than those who were not referred. (See Table 4). These differences were statistically significant, $t$ (72.18) = 3.12, $p < .005$ and $t$ (79.88) = 5.49, $p < .001$. for Voc. Ed. and G. E. students respectively. The magnitude of such a difference is substantial. The test's technical manual reports that the standard deviation for the test is 7.46 points. This means that on average, referred students scored at least a full standard deviation below non-referred.

This distinction between groups was also borne out in the attitude survey. Also administered on a pre- and post-test basis, the questionnaire consisted of both background and attitude items. The items of particular interest concerned self-reported study skills, self-reported previous grades, predicted course grade, interest in working with a tutor, satisfaction with previous course grades, motivation to succeed in school. Referred students reported significantly lower previous grades, poorer study skills, lower expectations for grades, and lower motivation to succeed in school. These differences were true for both Voc and GE students.

Looking first at GE students, those who were referred for tutoring reported that on the average that their study skills were "fair" to "good" while their unreferred peers reported study skills as being closer to "good." This difference was highly significant: $t$ (113) = 3.59, $p < .001$. These same GE students showed significant differences in self-reported previous grades with B's and C's for the referred group and A's and B's for the nonreferred group ($t$ [113] = 2.26, $p < .05$); had lower expectations for course grades ($t$

Table 4:

Reading Pre-Test Scores of Referred and Nonreferred Vocational (Voc) and General Education (GE) Students

| | REFERRED | | NOT REFERRED | | ALL |
|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S. D. | Mean |
| Voc | 24.4 | 10.5 | 30.5 | 7.7 | 27.8 |
| GE | 30.4 | 7.5 | 36.7 | 5.2 | 34.5 |
| ALL | 27.8 | | 34.6 | | 32.0 |

[111] = 3.47, $p < .001$); reported lower motivation to succeed in the studied course ($t$ [111] = 2.17, $p < .05$); and had a higher interest in working with a tutor ($t$[109] = 2.94, $p < .05$). Referred G. E. students, however, were not significantly less satisfied with their grades than the nonreferred group.

For vocational students, the pattern of lower grades and attitude ratings among referred compared to nonreferred was similar to that of the GE students. However, there were not as many statistically significant comparisons for the smaller number of Voc students.

Compared to nonreferred, referred Voc students did report significantly lower grades the last time they were in school ($t$ [77] = 4.07, $p < .001$); predicted lower course grades for themselves ($t$ [77] = 2.69, $p < .01$); and lower motivation to succeed in school ($t$ (78) = 2.10, $p < .05$).

Because of the number of variables associated with background and motivation, which are likely to be highly correlated with a student's decision to see a tutor, the results reported here cannot clearly distinguish between self-selection factors and tutorial intervention factors. The interview data lends credibility, however, to the claim that tutoring does make a difference for struggling students.

Interview data also evidenced the accuracy of the screening process. Of the 64 students interviewed, none questioned the accuracy of the identification process. Faculty reported that they felt "adequately guided by the Language Arts Department" in designing and administering skills-assessment tests. One quote illustrates:

> I see that teaching is not just delivering content and I feel that it's my responsibility as a teacher to (do some of the extra tasks).

Although a few faculty stated a preference for testing students prior to registration; most reported satisfaction with the process by which skill-deficient students are identified.

Question 2: Are referred students receiving tutorial assistance? Of all students in the study, 39% were referred by instructors to tutors. Of these, 44% sought tutoring help. There were some differences in the distribution in relation to sex, ethnicity, age, and course of study. Younger students, male GE students, and whites were the least likely groups to seek tutoring.

*Gender.* Males in vocational education courses were more than twice as likely as females to be referred to tutors: 56% of all males in Vocational courses (33 0f 58) were referred compared to 24% of all females (8 of 33). Males and females in general education courses were essentially equally likely to be referred: 34% of all males (20 of 58) and 36% of all females (33 of 91). However, once referred, males in vocational education courses were more likely to go to a tutor than not go: 56% of 33 referred met with a tutor; but males in general education classes were less likely to go: only 25% of 25 referred went to a tutor. For students who were not referred, females were more likely than males to go to a tutor voluntarily both in vocational classes (24% of the females and 8% of the males) and and in G. E. courses (21% of the females and 18% of the males).

*Ethnicity.* The sample of students was ethnically and racially diverse. About 75% of the students were White, 9% Hispanic, 8% Black, 5% Asian, 1% Native American, and 2% unreported. Approximately two-thirds of all Hispanics and Blacks were referred compared with one-third of the Whites and Asians. Once referred, however, minority students were more likely to meet t with a

tutor than were Whites: 57%, 50%, 50%, and 40% for Hispanics, Blacks, Asians, and Whites, respectively.

*Age.* Although students' ages in both Vocational and General Education courses ranged from 18 to the late 50's, the groups varied substantially with respect to median age. Vocational Education students' median age was 26 years, six years older than the 20 year-old median of the General Education students. G. E. and Voc. Ed. students referred for tutoring were generally younger than their nonreferred peers. The median ages for referred students was 24 and 20 for Voc. Ed. and G. E. students respectively, compared to median ages of 27.5 and 23 for the nonreferred.

Among the vocational students there were no age differences among those who chose to see a tutor and those who did not; both groups had a median age of 24. Among the G. E. referred students, those who went to a tutor had a median age of 25, but those who did not go were much younger at 19. Younger students were thus less likely to see a tutor.

Of the nonreferred students, those who elected to see a tutor were 8-9 years older than those who did not go. The median age of nonreferred tutored Voc. Ed. students who voluntarily sought tutoring was 35.5 compared to a 26 year median for those not going. Median age of non-referred general Ed. students who sought tutoring was 29 years, compared to a 21 year median for those not going.

Question 3: Why do some referred students seek assistance while other do not? The demographic data cited above begs interpretation. Why are younger male students in G.E. courses the least likely group to seek tutoring? One possible explanation, admittedly speculative, is that a definition of

adulthood which may be held by this group imposes a standard of self-reliance and independence which prohibits seeking tutorial help, despite an instructor's referral.

Differences in the way individual instructors conduct their classes may account for variation in the likelihood that referred students will see a tutor. Within V.E. classes, Welding and Appliance Service Technology provided the most successful referrals. Four factors could account for this. First, these classes are part of a program (either the Welding Program or the Appliance Repair Program). Within each program, many of the classes, including laboratory sections, are taught by the same instructor. The frequent student-teacher contact which results may provide more occasions for the teacher to reinforce the referral and for the student to come to believe that tutoring would be helpful. Second, the tutors for these two classes are regularly visible in the area in which the courses are taught. This close proximity may facilitate student-tutor contact. Third, these two vocational areas tend to have students who take classes only in the area. Students get to know each other. If some discover tutoring helps, others are likely to know about it soon after. Fourth, instructors in these areas often insist that students see the course tutor. They give the referral process clout. As one instructor described his approach, "I told him either to go down there and set up a time with a tutor or get out of the class."

Student interviews produced several interesting reasons to explain why referred students do not seek tutoring. (1) Some students feel awkward about seeking help. Tutoring is sometime perveived as remedial, that is, only for the less intelligent. Students reported that they felt: "stupid," "intimidated," "embarrassed," "nervous," "degraded." (2) A pattern emerged

of English avoidance among many students. "Not real good at English." "Always had trouble in English." "Essay tests are bad." "I don't like writing." A careful look at referred/non-tutored students' transcripts confirmed a general pattern of "English avoidance." (3) Some referred/non-tutored students reported in interviews that they were not referred. "I didn't think the instructor meant for me to go." "Never referred." (4) Many of the referred/non-tutored students indicated that they did not need tutoring. (5) Lack of time to work with a tutor was most often cited. (6) A few referred/non-tutored students indicated that they sought help from people other than tutors.

Faculty consistently reported that low motivation accounts for the failure of many referred students to seek tutoring. "Some students don't to the same degree have a sense of self or discipline or responsibility...". Faculty also offered the lack-of-time theme echoed by so many of the interview students, although faculty tended to label lack-of-time as an excuse, rather than a valid reason. Acknowledging that LMC's students have families, jobs, and other commitments one instructor commented: "Our students don't perceive (tutoring) as central somehow... They don't see it as part of what they've got to do."

Age, differences in course structure, differences in strengths of instructor referral, patterns of English avoidance, lack of time, and low motivation were the most frequently cited reasons to explain why referred students did not seek tutoring.

Question 4: How effective is the intervention?

Participation in the program is correlated with higher grades, greater retention, greater gains in reading comprehension, and improved writing ability. Faculty and students consistently report that Language Arts tutoring improves students' achievements, self-confidence, and motivation to succeed.

The pattern of reading test score gains was consistent with the program's expectations. (See Table 5). Both V.E. and G.E. students who were referred and tutored showed greater test score gains than did the referred, non-tutored students. The difference for V.E. students was statistically significant (t [35.7] - 2.44 p .05).

Among referred G. E. students, those who sought tutoring averaged a grade of 2.33 in the course in which they were tutored compared to a mean course grade of 1.67 for those who elected not to seek tutorial assistance. (See Table 6). A similar pattern emerged for V.E. students, 2.60 and 2.30, respectively. The grade differential between referred, tutored G. E. students and their nonreferred, nontutored cohorts was statistically significant (t [50] - 2.06, p< .05). The average grade point difference for Voc. Ed. students did not reach statistical significance, possibly due to the restricted range of grades given by instructors. 19.1% of the referred but non-tutored G.E. students received a "W" in the course, compared to 12.0% of the referred and tutored. Among referred vocational students, 17.8% of the non-tutored group received a "W" compared to 0% of the tutored.

Faculty interviews confirmed this pattern. "It was just amazing to see what could happen. . . new doors opened . . . " The outside interviewer reports that, "The tutoring program, as perceived by the faculty interviewed, works effectively for the students who use it." and that "the majority" gave the

Table 5:

Pre and Post Test Reading Scores for Vocational and General Education Students as a Function of Their Seeing or Not Seeing a Tutor and Being Referred or Not Being Referred to a Tutor

| | REFERRED | | NOT REFERRED | | ALL | |
|---|---|---|---|---|---|---|
| | Tutor | No Tutor | Tutor | No Tutor | Tutor | No Tutor |
| Vocational Education: | | | | | | |
| Pre | 22.6 | 26.5 | 32.9 | 30.1 | 25.3 | 29.0 |
| Post | 24.4 | 26.7 | 37.0 | 30.2 | 27.8 | 29.1 |
| Gain | 1.8 | .2 | 4.1 | .1 | 2.5 | .1 |
| General Education: | | | | | | |
| Pre | 29.3 | 30.9 | 36.4 | 36.8 | 32.9 | 35.5 |
| Post | 31.3 | 31.1 | 37.6 | 37.4 | 34.5 | 35.5 |
| Gain | 1.8 | .2 | 4.1 | .6 | 1.6 | .0 |

program "unmitigated praise." Faculty also credited the program with a higher retention rate: "If you're not able to say there's tutoring or another avenue, I think people give up. . . " Most faculty cited several examples of individuals for whom tutoring made a significant difference, "opened new doors for him . . . change in attitude . . ."; "never been possible without the tutor. . "; "He did very well - - improved 180 degrees."

Student interviews further confirmed a pattern of improved course performance as a result of tutoring. Many referred students, whether tutored or not, stated the opinion that tutored students get better grades. "Without the program there would be a lot of people failing in classes that are now getting by." "It helps bring my grade up." "Makes a big difference in grades." Students also credited tutoring with helping them stay in school. One example, "Without the tutor I would have dropped the class."

The standardized reading test, the writing asessment, and interviews provided evidence that tutored students increase their reading, writing, and study skills.

The writing sample, although collected from too few students to draw statistical comparisons, showed similar gains among referred/tutored students over the referred/non-tutored. The average gain on a six-point scale for the first group was 1.54, for the second, .50.

Interviewed faculty also reported observing changes in students' reading/writing/study skills as a result of tutoring. Students are "able to achieve . . much higher than before we had the tutoring program." "They can read and write better a than when I sent them." "The program is crucial. . " Students reported similar perceptions. "Everyone who goes to him (the

tutor) is doing better." "Study skills are improved." Another student reported using the writing skills he learned for other classes and even on the job. "I couldn't make heads or tails of what was in the text book. The tutor helped me sort it all out." One student offered auditory evidence, ". . . like the atmosphere in the LAB - - buzz-buzz. Learning's goin' on."

The interviews revealed another significant effect of the program: There is consistent evidence of the content faculty's commitment to reading and writing across the curriculum Several quotes from faculty illustrate: "The feeling is that the integration of the reading and writing in the subject areas (is) the only way to go." "I don't teach reading and writing, but it's part of my program." "I constantly work at stressing literacy." "Tutoring allows faculty to be teaching more at the level they want." "I've gotten more and more sensitized to the need of our students improving their reading and writing skills thanks to the Language Arts Area and the whole program." A student echoed this sentiment. "If he (the tutor) wasn't there, it would be harder on the teacher. The teacher can teach more."

Finally, it was not reported that student's presence in content classes "diluted" the content or intellectual rigor. Faculty report that having the tutoring program in place allows them to teach a higher level, because of the support service. According to faculty, the presence of tutorial help, not the easing of standards, allows students to stay in class.

Individual faculty in close collaboration with Language Arts staff can accurately identify underprepared students as reliably as a standardized test. Why put faculty to the trouble? Why not administer a standardized test to all new students? The statistical correlation between the reading

comprehension section of the DTLS and the in-house tests established that low-scorers on the in-house test are quite likely to be low-scorers on the standardized test. However, a standardized testing procedure does not promote faculty involvement in cross-curricular reading/writing assessment and intervention. This advantage was stressed repeatedly in the interviews. Second, the availability of tutorial help which is course-specific increases the likelihood that the progress students make in developing their reading, writing, and study skills is perceived to be relevant to their day-to-day study activities.

The within-course testing allows for within-course referral. This process integrates the students' academic goals with reading/writing development. From the student's point of view, tracking causes one to postpone goals in exchange for English classes. The students, in order to improve their reading/writing skills don't have to give up their purpose for being in school. This integration, coupled with a personalized referral helps students see the value of tutoring.

## DISCUSSION

The following discussion of findings and implications is organized around the four questions which guided the study.

### Question 1: Do the screening tests indentify appropriate students?

The data indicated that the in-class screening procedure used at Los Medanos College for identifying at-risk students was effective and that in-house assessments were at least as accurate in identifying students as a standardized test. Yet to be clarified are the uses instructors might make of

the specific information about each student from the in-house assessments. If there is some use beyond an initial screening then the costs in terms of efficiency and effort to maintain the program might be better justified.

A high percentage of the students who were referred for tutoring but who did receive it received a grade of "B" or better anyway. 63% of the G. E. students and 100% of the Voc. Ed. students who were identified as at risk but did not seek tutoring help received a "C" or better. These results are comparable to relationships observed between scores on standardized English assessments and end-of-course grades. As many as one-fourth of the students with poor literacy skills, as indicated by test scores, successfully complete college-level classes in which they enroll (Friedlander, 1984). It is as yet unknown as to why this happens.

Question 2: Are referred students receiving tutorial assistance?

Just under 40% of the students in this study were referred to a tutor by their instructor. Of these, 44% actually worked with a tutor. The likelihood that a student would see a tutor was related to age, program of study (GE or Voc), and course in which they were enrolled.

The finding that 44% of the referred students were actually tutored is significantly higher than that which has been reported for academic support services at other community colleges where the use of the support service is voluntary. Results of several studies have shown that on average 29% of the students who are referred to a voluntary support service avail themselves of it (Friedlander, 1982; Cohen, 1985). The findings of these studies also showed that students who were not confident in their skills did not differ significantly from students who were more confident in these same skills in

their articipation in developmental education courses and their use of tutoring (Friedlander, 1984). Viewed in this light, the figure of 44% is encouraging. The figure is substantially lower, however, than might be expected than if the service were mandatory for those who needed it (Losak, 1982; Losak & Morris, 1983; Rounds & Andersen, 1984).

Question 3: Why do some referred students seek assistance while others do not?

This portion of the study produced some useful insights into the reasons why students seek or do not seek tutoring. The findings also resemble those obtained in state and national studies in which this question was examined.

Four separate surveys involving over 10,000 respondents revealed that the reason most students gave for not using a potentially beneficial support service was that they did not feel thy needed it. Second most frequently cited reason was lack of time. The third was that the service was at an inconvenient time. Less than four percent stated that they avoided a particular support service because of a poor reputation (Friedlander, 1982).

The pattern of English avoidance among the referred but nontutored students observed at Los Medanos College was also found in studies at the Los Angeles Community College District (LACCD). Academically underprepared students in the LACCD differed from those who were better prepared in that they were less likely to enroll in liberal arts classes (Benjamin, 1976). In a survey at Washington State Community College, it was found that 20% of the students who rated their reading and writing

skills as poor cited too much required reading as the reason they had not enrolled in social science and humanities courses. They were also likely to cite lack of interest in the subject (Friedlander, 1984). Students at Los Medanos and elsewhere seem to avoid subjects where they expect to do poorly.

Results from interviews with faculty at Los Medanos College are also consistent with those from other studies. Over 50% of the faculty surveyed in the Los Angeles study reported that students do not take advantage of support services they need because they are unwilling to devote extra time and energy to it. 20% of the faculty mentioned time convenience as a factor (Benjamin, 1976).

The importance of the faculty member's role has been documented in studies conducted at Chicago City College's Center for the Improvement of Learning and Teaching (Bloom, 1980). It was found that the first few weeks of a term were crucial in the likelihood of retaining high-risk students. Teachers with high course completion rates took an interest in the student, provided immediate feedback, were well-organized, and advised students regarding available and appropriate support services.

Question 4: How effective is the intervention?

Perhaps the most significant finding of this study was that high-risk students can succeed in college-level content courses if effective interventions are applied. Peer tutors, knowledgeable in the content course and in tutoring reading and writing, are an effective bridge between college level courses and a diverse group of underprepared students. Tutoring is related to student improvement. A substantial number of Los Medanos

College students who are "at risk" in their courses are succeeding at least in part because of the Los Medanos College model of learning assistance. It is not just a sophisticated mechanism by which the open door becomes a revolving door. Instead, this model allows underprepared students the assistance they need to gain entry into a college-level education and to achieve their goals.

The viability of this result is supported by the research of Professor Benjamin Bloom (1980, 1984), a noted authority on evaluation of student achievement and the leading proponent of mastery learning. Bloom has found that the typical lecture/discussion approach to college instruction followed by most faculty results in a high correlation between achievement and aptitude. Students at the low end of the grade spectrum receive low test grades and those at the high end of the grade spectrum receive high test scores. Bloom has repeatedly demonstrated that if an effective instructional intervention occurs, the correlation between aptitude and course grade approaches zero.

Several authorities argue that remediation does not have to be packaged into remedial skills courses. Remedial-level students who enroll in regular college-level courses can be successful if given well-planned supportive materials and services. (Friedlander, 1981, 1984).

An example of the success that can be achieved by building remediation efforts into regular college courses is illustrated in studies conducted at the City Colleges of Chicago (Barshis, 1979; Bloom, 1984; Chausow, 1979). Students deficient in basic skills were not placed into remedial-level courses, but in regular college courses, some of which utilized mastery learning

techniques. It was reported that achievement and retention of high-risk students in regular college courses exceeded that of their peers who were enrolled in remedial courses.

At Miami-Dade high risk students who are doing poorly in a college course are referred for remedial help. The grade point averages of those who sought the help increased by .88. At the same time those referred students who did not seek help suffered a decline of .44 in their grade point averages. Among those who sought help retention increased by almost 3/4 (Luckinbill & McCabe, 1978).

The evidence from research studies is consistent and clear; academically underprepared students with modest deficiencies in their basic skills can succeed in college-level courses if effective remediation is structured into their classes. Programs such as the one at Los Medanos College, offer a sound alternative to tracking underprepared students into remedial courses by integrating literacy training into the regular curriculum.

RECOMMENDATIONS

As a result of the study, the investigation team formulated specific recommendations, each of which falls into one of three categories: the referral system, program visibility, and program accountability.

*The referral system.* The referral system requires tightening. 56% of referred students did not elect to seek tutoring. The college needs to formulate a plan to reduce the likelihood that referred students will remain untutored. It is recommended that the institution mandate that referred students seek tutoring. The mechanics of the mandatory system including a

fair appeals process should be hammered out by a multi-disciplinary committee of faculty, administrators, and students. A mandatory system basically means that some "lever" exists in the system to motivate non-complying students to seed the assistance they need. Tutoring should be made a requirement for the satisfactory completion of the course in which the student is identified as skill deficient. If students are screened and referred within the first two weeks of the semester, an instructor could justifiably require referred students to work with the course tutor in order to pass the course. Additional course credit would be available to these students.

In addition, students on academic probation and students who are identified as needing tutoring in two or more classes in the same semester would be required to see a counselor before they could enroll in courses in the next semester. Counselors would help students re-assess their skill levels in relation to their academic goals. Counselors should have access to tutors' schedules so that, when appropriate, tutoring would be built into students' academic programs prior to the first day of instruction. Students' records could be flagged in the same manner as those on academic probation. Faculty could easily note referred students on first census roster.

A congratulatory letter should be sent to those students who were referred and who are receiving tutoring. This letter should reinforce the link between reading/writing/study skills and the content courses, congratulate the students on taking a positive step toward achieving their goals, and remind them that similar tutoring is available in other courses. A similar letter should be sent to those students who were referred and who are not receiving tutoring. This letter would advise them of the mandatory school

policy regarding tutoring, should encourage them to see a counselor, and reinforce the value of tutoring. Those students who are referred and who do not seek assistance should be required to initiate an advising contact with a counselor or other staff prior to enrolling in the subsequent semester.

Reading test scores, particularly in Voc courses, also suggested that learning disabled students are not likely to be identified by content faculty. Although many factors besides a learning disability could account for very low scores, it seems likely that at least some of the very low scores are related to learning disabilities. Counselors, language arts teachers (especially in developmental English courses), and tutors have reliably identified significant numbers of L.D. students, but content teachers typically do not. The LMC Learning Specialist and content faculty should commit suitable inter-session time for in-service training focused on identifying symptoms of learning disabilities in the course reading/writing screening test results.

*Program visibility*: Students need to be continually reminded that the program is there and that it does make a difference. Faculty should continue to use that "personal touch" so often cited in student interviews for the project. The language arts area should provide a written description of the program and its advantages to faculty who in turn would distribute it to their students along with the course overview. This description would describe the program and the college's mandate that some students will be required to take advantage of it. Tutors' schedules should be posted with the course schedule across from the registrar's office. A brief description of the program and an explanation of how to sign up would be placed at this location and in the course schedule. Priority should be given to in-service

training of part-time faculty. Unlike full-time faculty, many part-time faculty are not familiar with program mechanics and philosophy.

Finally, students' recurring requests for "more tutors and more times" should be addressed. Interviews suggest that many students don't see a tutor because the times a tutor had available didn't match their free time. Efforts should be made to establish, in general, the times when tutoring could most likely fit students' schedules.

*Program Accountability*: An on-going record-keeping system should be established in order to continue gathering information regarding the relationship between participation/non-participation in the program and students' grades, retention rates, and progress toward academic goals.

Further efforts should be made to holistically assess G.E. and V.E. students' writing skills. A sample of pre and post writing should be taken during the school year from a large number of students. Efforts should be made to create a question relevant to all courses from which samples are drawn and to schedule the exact dates of the testing in advance. Perhaps a large enough sample of students could be gained from faculty who would volunteer to incorporate this testing into their classes.

A position paper advocating these recommendations was passed in the Spring of 1986. The paper detailed the structure, policies, and governance procedures of a Second Generation Tutoring Program; detailed an evaluation plan for the program and the personnel; and suggested procedures for computerizing the record-keeping. Copies of these documents are available from the Tutor Coordinator at Los Medanos College in Pittsburg, California, 94565.

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This is a test of your basic reading and writing skills. The purpose of the test is not to give you a grade, but to determine if any of you would benefit by extra help in reading and writing while you work on your certificate of achievement in welding.

To take this test, first read your copy of the SAFETY RULES. You may refer to the rules while you work on the test. Then answer the questions below. Be sure to write in complete sentences. Be sure to write according to the information in the SAFETY RULES.

1. Briefly explain the reason for safety tests and shop rules.

2. Why is the light that the arc makes dangerous to your eyes?

3. In #3, what does the word "entangled" mean?

4. In #3, what does the word "ignited" mean?

5. Why are "flammable" materials hazardous?

6. Why do welding machines have to be grounded?

7. How far should you acetylene cylinder valves?

8. Why is it dangerous to cut or weld on cadmium plated or galvanized metal?

9. Why is it dangerous to flame-cut directly over concrete?

10. How should you handle hot metal?



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